Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

Vol. 3. New York, December 25, 1847. No. 14.

THE
SCIENTIFIC AMERICAN:
PUBLISHED WEEKLY
At 128 Fulton Street, New York (Sun Building,) and 13 Court Street, Boston, Mass.
By Munn & Company.
The Principal Office being at New York.

TERMS—$2 a year—$1 in advance, and the remainder in 6 months.

☞See advertisement on last page.

Poetry.

GIVE.

If the poor man pass thy door,
Give him of thy bounteous store;
Give him food and give him gold,
Give him shelter from the cold;
Aid him his lone life to live,
For 'tis angel-like to give.

Though world riches thou has not
Give to him of poorer lot;
Think thee of the widow's mite,
In her Holy Master's sight,
It was more a thousand fold
Than the rich man's hoard of gold.

Give! it is the better part,
Give to him the pure in heart;
Give of love in large degree,
Give of hope and sympathy;
Cheer to them who sigh forlorn,
Light to him whose lamp is gone.

Give the gray-haired wanderer room:
Lead him gently to the tomb,
Let him not in friendless clime,
Float adown the tide of time;
Hear the mother's lonely call.
She the dearest one of all.

And the lost abandoned one
In thy pathway do not shun:
Of thy kindness she hath need;
Bind with balm the bruised reed;
Give and gifts above all price,
Shall be thine, in Paradise.

IT SPOILS A MAN TO MARRY HIM.

Believe, dear girls, this maxim true,
In precept and in practice too,
That it spoils a man to marry him;
The creatures never ought to go
Beyond a honey moon or so;
If they survive that they will show
That it spoils a man to marry him.

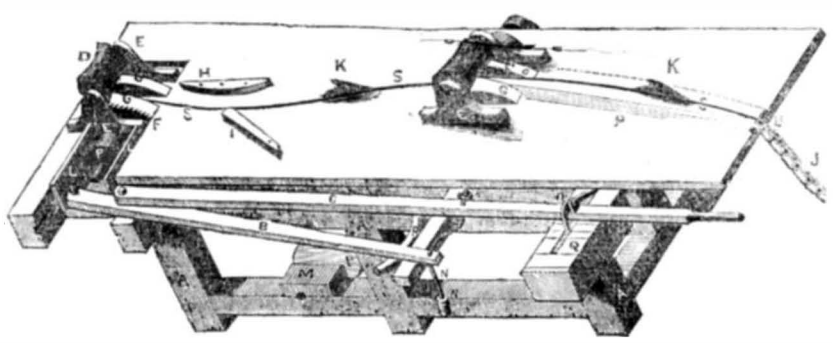
When first he kneels before your feet,
How soft his words, his looks how sweet:
But it spoils a man to marry him:
When once a late consent he'll wring,
And gets your finger in a ring,
Oh! THEN he's quite another thing,
It spoils a man to marry him.

Have you a fancy? you must drop it;
A will, it may be? you must lop it,
Before you think of marrying;
And even if you venture then,
Select the very worst of men:
If not, nine chances out of ten,
'Twill spoil the man to marry him.

Curiosities of Food.

There is a large tribe of Indians in New Mexico, who live on a sort of grasshoppers, or wingless locust, which they dry pulverize, and knead into a kind of cake which they bake, and which is not bad eating. The wild horses which traverse the plains of California and New Mexico in vast troops, the descendants of the war horse introduced by the Spanish discoverers and conquerors, are becoming more highly prized and sought out. By some they are used as food. The early settlers of Oregon fed on their flesh and found it quite palatable and nourishing: they called it "Columbia-beef."

LAW'S
IMPROVED STAVE JOINTING MACHINE.



The above is an engraving of a Stave Jointer, the invention of Mr. H. Law, of Wilmington, North Carolina, who has taken measures to secure a patent for the same. Its utility, nature and mode of operation will be fully understood by the following description:—

A A A, frame. B, lever, which moves the frame L L, together with the saw and roller D, which are all attached to frame L L. C, lever, by means of which lever B is moved. D D, concave rollers under which the stave passes. E E E E, standards to support D D. F F, circular saws, standing in a raking position, verging in opposite directions, so as to give the proper bevel to the edges of the stave. G G G G, raised pieces over which the stave passes, which raised pieces together with the concave rollers D D, form throats or slots just the thickness of the stave and through which the stave is made to pass. H, a guide piece to conduct the stave to the second saw. I, a light spring to press the stave against the guide piece H. J, the end of the feed chain which connects with the dresser. K K, dogs or hooks, attached to the endless chain and traversing in the curved slot S S S, to carry forward the stave—the chain is underneath and does not appear in the engraving except at J. L L, moveable frame that supports the saw, and that is attached to, and acted upon by lever B, to adjust the saw to the width of the stave. M, journal box. P P, pullies to drive the circular saw. O, palls, or holdfasts, to lever C. N N, weight and rope that move lever B. Q Q, index beds. R, curved piece attached to lever B. . . . . dotted curved line ranging with the saw and governing the feed of stave on that side.

OPERATION.—The stave is deposited by the machine on the floor of the Jointer, and is placed by hand with the back of the stave up, with one edge on the dotted lines, being the proper position for that edge to be jointed by the first saw, and with a single glance of the eye on the index lines on the near side the Tender can see what width the stave will bear; if it is described for instance, by the first line, the lever C, is immediately placed on the corresponding first line, and held fast by pulley O, or if the stave is of some other width, it is readily seen, and the lever C placed in the proper position—but it is not convenient that the saw should take that position immediately, therefore lever B is still held fast in its former position by ratchets underneath and attached to circular piece R, which circular piece is attached to and traverses with lever B. There is a ketch attached to the frame of the machine, which is pressed into the ratchets and holds fast lever B. This holdfast is tripped by one of the dogs passing through a throat under the floor, at the proper time, when the weight N immediately shifts lever B to lever C, and places the saw in its proper position. The dog that carries the stave forward traverses in a curved line, corresponding to the bilge or taper of the stave, giving to the stave its taper, and both saws standing in a raking position corresponding to the bevel of the stave, gives to the stave its proper bevel, the stave passing between the raised pieces G G G G, and the concave roller D D, which together form a slot just the thickness of a stave, must of necessity bring every crook or twist fair to the saw, jointing to correspond with the crooks and twists and making a more perfectly shaped stave than can possibly be done by the hand. The staves are pressed by springs (which do not appear in the engraving) up against rollers D D, and as the rollers are more concave than the stave is convex one edge of a narrow stave is forced into this concavity and presents an edge less bevelling to the saw than a wide stave does—so that without any alteration of machinery the bevel is made to correspond to the width of the stave; to accomplish this with the second saw the concave roller together with the near standard E and raised piece G is attached to the frame and shifts with the saw.

Harbors in Oregon.

Capt. Wilkes, who commanded the exploring expedition, in a letter to Asa Whitney, Esq., remarks as follows:

Every one is satisfied with the facilities the harbors on our Eastern seaboards offer for commerce. However great they may be, they do not exceed those offered by the Straits of Juan de Luca, Admiralty Inlet and Puget's Sound on the Western Coast. Those I am minutely acquainted with and they are not surpassed by any, and large enough for the commerce of the world, and fit receptacles for the commerce of the East, which I cannot doubt, but will, one day, and that not far distant, flow into them.

There are 2,309 women attached to the American army in Mexico for washing, mending and attending the sick.

Beds in India.

A person would imagine that every body is very fidgetty at night, and rolls and tosses about a great deal in the very hot weather.—To render ourselves more comfortable at such times, we have a number of pillows of all shapes and sizes, and hardness, scattered over the bed. At one roll you lay your leg on one and your arm on another, and then you turn over to the other side, and then throwing your feet on to one pillow, you hold another fast under your arm: that won't do, and you roll over on your back, with one pillow under your knee and another under each arm, and so on through the night. "I assure you," says Mr. Ackland, "that however absurd it may appear, this multiplicity of pillows is a very great comfort on very hot nights, although when you awake you certainly often find yourself and them in very funny positions."

RAIL ROAD NEWS.

The New-Jersey Railroad Co., in order to place their entire road and the bridges in the most permanent and substantial manner, will make application to the Legisleture for an increase of $500,000 capital. And in view of meeting the demand for more extensive depot and wharf accomodations, arising from business expected to be drawn from the Erie Rail road from the connection of that road with the Paterson Railroad by means of the Ramapo Railroad now in the course of rapid construction, a branch road to some other point on the Hudson opposite New York, is deemed necessary. The Belvidere and Trenton Railroad Company having indicated their intention of commencing their work, a connection is proposed by the New Jersey Railroad Company to be made with it from New Brunswick or its vicinity by the way of Flemington.

The New York and Erie Rail Road is rapidly progressing, its business is now increasing on it.

The friends of the Richmond and Danville (Viriginia) Railroad have organized and elected their officers. We hope the old Dominion will push on their work. There can be no doubt of the utility of the proposed project.

St. Andrews and Quebec Rail Way.

A new Railway has been commenced between St. Andrews N.B. and Quebec. This is the first Rail Road in New Brunswick. The Brunswickers are certainly behind the speed of the age. We hope they will make amends for past inertness.

Whitney and His Railroad.

Mr. Whitney addressed the Legislature of Georgia, on the 16th inst., upon his great project for connecting the Atlantic and Pacific Oceans by Railroad He asked the passage of the resolutions approving his plan. These were passed in the House without dissent, and in the Senate by 63 votes to 60, after a long debate.

Mr. Whitney also delivered an address on the subject of his railroad from Lake Michigan to the Pacific at Nashville Tenn., in the hall of the House of Representatives. The Nashville Whig says, that the impression he made was entirely favorable to the project, and that the Legislature has taken the subject into consideration and recommended it to the favorable action of Congress.

Rail Road and Scripture.

Mr. Russel, made a speech on the occasion of the celebration of the Northern Railroad, Company, in which he quoted the following; prophecy from the prophet Nahum, chap. 2, verse 4:

"The chariots shall rage in the streets: they shall jostle one against the other in the broadways; they shall seem like torches; they shall run like the lightnings."

The Cumberland Civilian says:—Thirteen thousand hogs have been transported by the Railroad to the Baltimore market during the past two weeks. There are now registered on the books of the office at this place, twelve thousand one hundred more for the same destination.

Our Niagara.

"In your country," said an American, "you have the ever-burning Mount Versuvius." "Have we indeed?" rejoined the Italian. "But please to remember that in your's you have the ever-glorious Falls of Niagara, that would put it out in five minutes."

Theory and Practice.

How much easier it is to talk than to act, is it not. Almost every body has his head filled with virtue and all that sort of thing, but how is it with his heart? "Inquire within," and look around for yourself.

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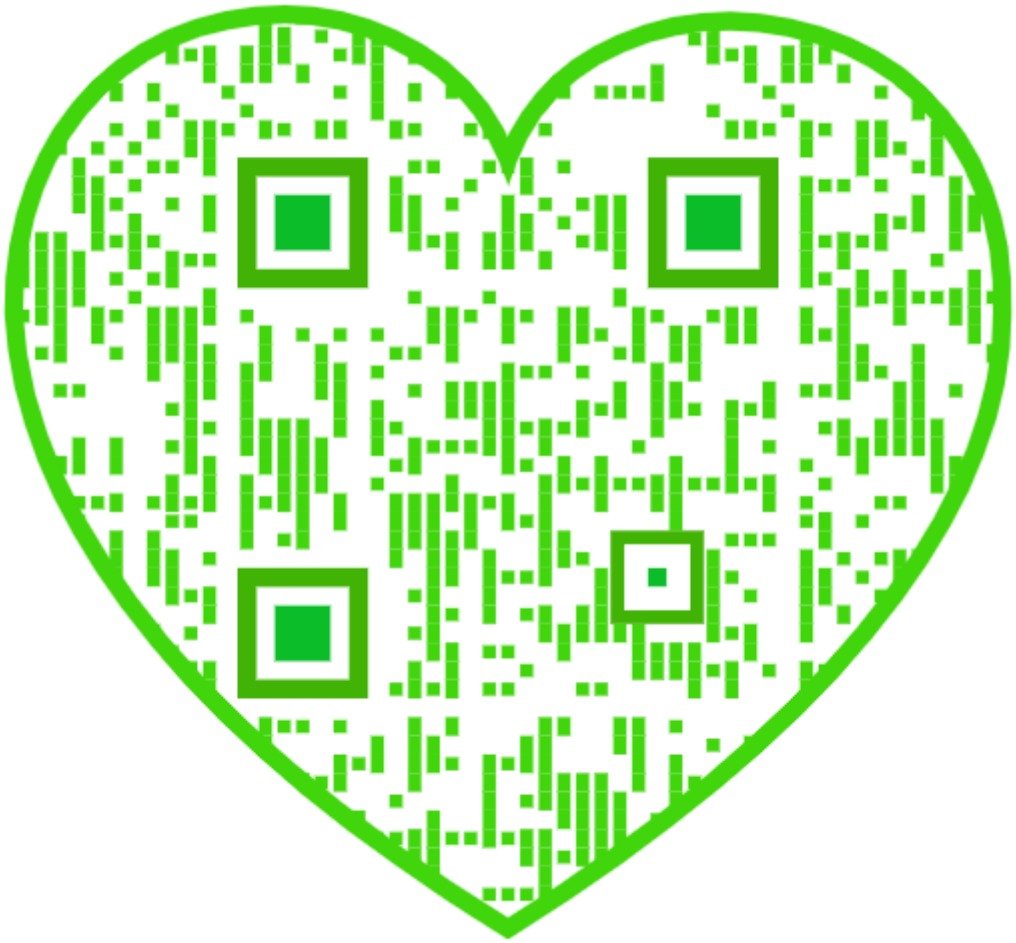

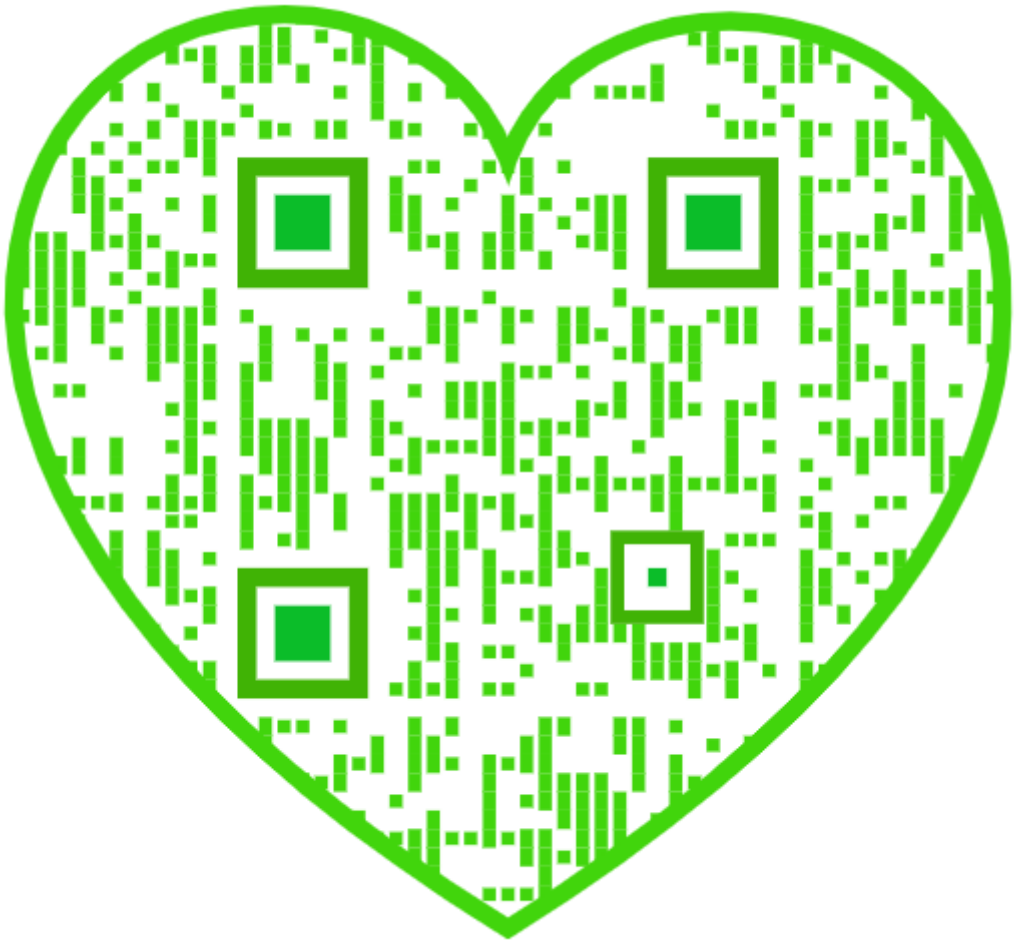

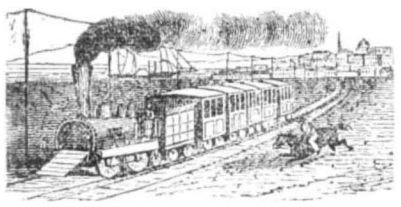

Natural Bridge in Illinois.

In Jackson county, Illinois, on the south side of Muddy River, near Murfreesborough, there is a natural bridge which is something of a curiosity. It is thrown across the bed of the rivulet from buttresses of nearly equal size, worn out of the solid rock by the water as smoothly as if cut by a chisel. The bridge is a solid block of limestone, eighty four feet in the span of the arch from buttress to buttress, twenty two feet above the bed of the stream, fifteen feet wide, seven feet thick in the centre, and about twelve feet thick at the ends resting on the two buttresses. The appearance of the whole is that of a modern stone bridge, except that the north end is a little lower and narrower than the other, tho' the inclination is not more than two and a half feet in its length on the top. This is one hundred and twenty feet long, and firmly and conveniently set into the opposite banks, and over which is a good road for horses. The bridge is only about forty feet from a ledge of rocks running parallel to its base, and both looked upon together reminds one of some ancient castle with its drawbridge. Large oaks and poplars are growing on the bridge and on the top of the ledge, while a deep tangled undergrowth gives to the whole scene an air of romance and mystery. The country is volcanic; the bed of the stream is several hundred feet above the bed of the Mississippi, and as the appearance of the river is lost at the base of the ledge, it is evident that once a river cut out and ran under that bridge, and in a shock of nature that ledge was thrown up to intercept its channel, while the whole country, being elevated by the earthquake, took its present astonishing condition.

Wild Geese, Ducks, &c.

The Sandusky Clarion, says that the annual slaughter of these uufortunate bipeds has commenced and has been going on at the head of the bay for some two or three weeks. Scarce a day passes that boat loads of them are not brought into our market.

There is probably no place in the country where greater numbers of these birds can be found, or in greater variety; affording a rich field as well for the ornithologist as the sporman. The canvass back, the finest of game birds, are killed there, sometimes in great numbers. They are, however, principally confined to particular and favorite localities, and do not make their appearance much, until a little later in the season, or until the weather is rather colder than at present. A swan was killed in the Cove, by one of our old sportsmen last week.

New Iron Company.

The Trenton State Gazette, says that an application will be made to the Legislature of New Jersey, at its next session, for an act to incorporate a new company, to be called the Schooley's Mountain Iron Company, with a capital of one hundred thousand dollars for the purpose of mining and smelting iron and other ores and minerals in the county of Mersa.

Sugar.

Eight planters on the Brazos, in Texas, will make 2,800 hogsheads of sugar. Texas, will not, after all, be so bad a brgain, if she goes on at this rate, We think her lands capable of raising all the sugar this country can consume.

Earthquake.

There has been a great earthquake at Valparaiso, South America. It occurred on the 8th October, and lasted twenty six minutes.—The shocks were terrific. The Valparaiso papers state that the whole country around for ten thousand square miles, heaved like the waves of the sea.

We tender our thanks to Francis O. Dorr, Esq., Wall street, for valuable information regarding foreign Patent Laws, which we shall commence publishing next week.

New Steamboat.

We learn from the Bangor Mercury that the Directors of the Penobscot Steam Navigation company, have already contracted for the building of a first class steamer—the first class in build and materials of hull and engine and first class in regard to speed. The hull is to be built by Messrs. Bishop and Simpson, of New York. The hull is to be 220 feet in length—32 feet beam—and 11 feet depth of hold. The engine is to be built by Joseph E. Coffee of New York, and of the West Point Works—and will be of 11 feet stroke, and 54 inch cylinder. The boat is to be in readiness to commence her trips to Portland, to connect with the Rail Road to Boston, in May next; and it is said that she will cost about 80,000 dollars. Capt. S. H. Howes will command her.

Careless Apothecary.

It is dangerous to get prescriptions made up at druggist's stores, where careless boys or other ignorant persons are left in charge. What with the Latin of the Physician and on the pots and bottles, and the want of it in the deputy apothecary, there is often real danger. The Baltimore Patriot states a case in which a family physician prescribed for a sick child in that city—a careless druggist's shop-boy delivered different medicines from those ordered and the child died.

Arrowroot.

From a statistical table recently published of the productions of Bermuda, the value of Arrow-root is stated at not less than $20,000 annually. More than two thirds are used in great Britain. Yet from the prejudice of some and the cupidity of others, it would appear that more than five times the whole production of Bermuda is consumed in the United States.

Steamer Ontario.

The new boat, for lake Ontario has cost 80-000 dollars. and is now in the dock at Oswego receiving her finish. She is 900 tons burden, very handsome and her machinery and engine are from the works of Messrs. Secor of this city.

Atmospheric Engines.

The name given to the first steam engines was atmospheric, because the piston was raised by steam, and the steam being condensed in the cylinder, a vacuum was formed and the piston descended by the pressure of the atmosphere, which is about fifteen pounds on every square inch of surface.

More Coal.

It is said that recent investigations have led to the belief that there is a coal bed in one of the mountains in Ossipee, New Hampshire. If this is true it will be a great benefit to the Montreal and Cocheco Railroad.

Valuable Manuscript Discovery.

It is reported that M. Vattemare has made some valuable discoveries in the office of the Secretary of State A mass of old papers were put into his possession to wrap up the works that were presented to him by the State, and among them, he is said to have found the original Charter of Trinity Church New-York, granted by Queen Anne, and other valuable manuscripts that Mr. Broadhead was sent to Europe to enquire after.

A Human Tiger.

We noticed in an English paper that a jealous wife recently tied her husband to the bed while he slept and poured boiling hot water over him.

Dividend.

It is said that the Beaver Pond Canal Co. on L. I., have declared a dividend of one porgie on each share of the capital stock of the Company, payable in eels.

Sore Nose.

A man of science up among the Knickerbockers, prescribes the following cure for a bruised or irritated nasal appendage: Take half a pound of gum guiacum, half a pint of cowhage and half a gallon of tar—simmer over a slow fire until effervescence ensues. Apply to the afflicted part with a whitewash brush. In about an hour the sore will peal clean off—nose and all.

Adulteration of Flour.

A flour dealer in Leeds, England, was detected recently in a shameful and dangerous adulteration of flour; and it appeared that on examination of his premises he was engaged extesnively in the villainous practice. A widow and five children were taken ill, with unequivocal symptoms of having eaten something deleterious; and their physician was induced to examine their bread. An analysis convinced him that it had been mixed with plaster of Paris, or some other substance Having ascertained that other families had suffered from the use of the same bread, and learned where it was purchased, he gave information which led to the arrest of a man by the name of Vickers, who had shops for the sale of flour in several parts of the town. It was found that he had on hand an immense quantity of Paris white, and plaster of Paris, with rollers and stone tables for pulverizing it, and sieves and other materials for mixing it with the flour. A great quantity of flour mixed with Paris white was found in his premises. The man confessed his guilt, and implicated his wife in the disgraceful transaction.

Curiosity of Nature.

In the midst of the great ledge, on the Northern N.H, Railway, which is chiseled 30 or 40 feet deep out of a solid rock, for more than a quarter of a mile, a body of peat is found, so wet and spongy that it was found necessary to dyke it with large timbers to keep it off the track. How this dripping peat muck found its way to this summit—the highest ground between the Merrimack and the Connecticut—is a marvel. But here it is, and as full of water as any muck on our low meadows

Vine at Hampton Court.

It is said to be the largest in Europe, or in the world. It is eighty-nine years old. The glass-house built for it contains 2,200 square feet; but the house is much too small. The weight of its grapes in a fruitful year almost drags it down. Two thousand five hundred clusters, one pound each, are solemly reported to have been gathered in one season. It is of the black Hamburgh species. Its stem is thirty inches in diameter, and its length is trimmed down to one hundred and ten feet. We walked under it, and carefully surveyed its vast dimensions, with its thousands of growing clusters. Its fruit is carefully gathered and preserved for the Queen's desert.

Sad Accident.

Mr. Cornelius W. Lathrop, of Trenton, Mass., was lately engaged in sawing shingles in a mill in Raynham, and while standing in front of the circular saw, it suddenly broke, and a part of it struck across his face and his neck with such force as to sever the main artery, which caused his instant death. Mr. L. was a worthy man about thirty-seven years of age, and he has left a wife and several children.

Anything but a Mechanic.

Gildersleve gave up a good business in this city a few years ago to become a regular runner of races, yet he is now beaten by every Englishman or Indian that runs with him. His business was broken up, and he is broken down.

Destitution in New York.

By the half yearly Report of the Chief of Police of this city. We learn that 14,381 arrests have been made in six months. Lodgings have been given at night to no less than 12,889 unfortunate persons who are houseless.

The proprietor of a factory near Rochdale England, has been fined $200 for not boxing up his machinery. A little girl who was carrying some tea to her father, had her arm torn off by one of the shafts. It is proposed to give the girl the fine.

The strip of land lying east of the range of the Sierra Nevada in California, and 20 to 200 miles wide, is described as the most fertile land in the world, while that lying west of it as far as the basin of the Rio Colorado, is barren and worthless; in fact, only a sand wilderness.

The information of a Traveller is very acceptabte and will appear next week.

Our New Bedford, Mass., Patrons.

If our subscribers at the above place have not been served regular with the Scientific American for two of the past weeks we would inform them that it is not our fault, but in consequence of our agents not fulfilling their agreement or in other words neglecting to pay a demand which we hold against them. We have made arrangements with Mr. S. F. Hoyt now and in future the Scientific American may be obtained regular at his news room. We hope that those who formerly took the paper of Messrs. Robinson, Parsons, & Co., will continue to take it of Mr. Hoyt.

Patent Agency.

Applications for Patents made at this office, on the most reasonable terms. Neat drawings, specifications, and engravings of the first character, and cheaper than anywhere else. Notices of new inventions, Agency for the sale of Patent Rights, and all business of that nature, promptly attended to. Those who have patent rights to dispose of will find a good opportunity and field for their sale—such as Horse Power Machines and Waterwheels of every description. The largest circulation in the world for advertisements of inventions, &c.

The Court of Common pleas of Philadelphia has decided that a tenant on a farm who ploughs down sod and grass for the purpose of planting, commits waste, and violates his implied lease; and that such a tenant is liable to a writ of injunction. Very bright decision.

The Bangor Whig states that an interest in the slate quarries at Barnard, Me., has been disposed of to dealers in slates in Boston. An agent has been sent to Wales for persons skilled in working slate quarries, and the business is to be carried on with energy.

The West Troy Bell Foundery last week received orders for a Church Bell from the Island of Cuba, and for one from Nassau Island of New Providence.

The Canada canals were free from ice on the 10th inst. Vessels of 400 tons can pass through them from Erie to the Ocean.

The tolls on the Welland Canal have netted $120,000 this season.

A farmer recently waited upon Prince Albert with an improved plough, his own, and was entertained at Windsor Palace for a number of days and upon taking leave, he was presented with a Bible containing the autographs of Albert and Victoria.

Mrs Jane C. Washington present owner of the estate of George Washington, is willing, now, to dispose of 150 acres, inclusive of the buildings, grounds, and tombs, to the Government for $100,000. Congress should buy it.

By the construction of a canal from the main branch of the Potomac to the eastern branch, an artificial island is formed.

John Brooks, of Princeton, lost $400 last Sept., in Worcester. The money was restored by a priest, who received it from an Irishman at confessional.

An humble man is like a good tree; the fuller of fruit they are, the lower they bend themselves.

A steam engine is now being built of twenty horse power at the Navy Yard, at Washington, which is to be sent to California.

The handle of a jug and the handle of one's face are on the outside, and fashionable religion too much so at this time, we think.

Three things which never become rusty—money of the benevolent, the shoes of a butcher's horse and a woman's tongue.

Why is a ship's crew like a bomb shell? Because when discharged they go a Bust.

Isinglass and gin dissolved together by a very slow heat makes a good cement for glass.

A man in Providence, R. I. dislocated his jaw last wednesday by gaping.

It is estimated that the expenses of holding the court Martial now trying Col. Fremont, will exceed $50,000.

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For the Scientific American.

To Dye Blue.

A light blue may be dyed on silk by the sulphate of indigo, that is, 1 pound of the best indigo ground fine to 6 pounds of pure sulpharic acid, added gradually and stirred well. It will take three days to make well, and nine perfectly. It is good to keep the vessel in which the *chemic*, as it is called, is made, at at a moderate heat in cold weather. A very small portion of this compound mixed well with with warm water, will dye a very good blue on silk, and if turmeric or fustic are added to the chemic solution a green is the result. This mixture will also dye blue on woollen but the goods must be boiled in it, and if a dark shade is wanted, a preparation of the goods in logwood liquor having a small quantity of the muriate of tin along with it, is a good basis—then the indigo sulphate on the top. It is impossible to describe the exact quantities, more or less of each is given according to the shade wanted. The sulphate of indigo will not dye cotton unless the acid is neutralized by feeding the chemic with chalk. A beautiful pencil blue is made by adding the acetate of lead to the sulphate of indigo. This composition is used in calico printing.

A blue can be dyed on wool by boiling woollen goods for one hour in a preparation of the sulphate of copper, two ounces to the pound and a little alum, then wash them well and boil one hour longer in logwood liquor. This color is very fugitive. A more fast color may be made by using the same quantity of copperas and one ounce tartar to the pound of goods, and treating the goods in the same manner. Boiling don't spoil woollen goods as some suppose, for all colors on wool, are boiled and the better they are boiled the faster and cleaner the colors will be. By increasing the quantity in the last receipt a good blue black is the result.

A logwood blue can be dyed on cotton by a preparation of the cotton for two hours in a strong solution of the sulphate of copper and alum, then washing them well, squeezing or wringing them and afterwards putting them through a good strong solution of logwood and then running them through a weak solution of soda ley. There are very few colors that are dyed on cotton that have to be boiled, in no instance is it necessary for logwood colors to be so treated. This color will do well for carpet rags and coarse canvas that may be used to tread upon, such as to cover stair carpet. Blue can also be dyed upon cotton by repeated dips in a strong solution of the sulphate of copper in one vessel and caustic potass in another. The goods must be wrung out of each of the solutions This is an expensive color and cannot be done easily, but it is the most perfect *sea blue* of all the blues, and if arsenic be added to the copper solution, it make the beautiful sea. or sage green. Like the serpent, it is beautiful to look upon but it is as dangerous to labor at, as to receive the bite of the reptile. Many a dyer has lost his life by this color.

We have been very plain, so that any person may understand the meaning of the foregoing receipts. We shall treat of the dyeing of indigo blue on cotton, silk and wool, in our next.

Freezing Mixtures without Snow or Ice.

As brine freezes at 0° degrees Fahrenheit, and as several of the accompanying freezing mixtures without the aid of snow or ice, produce an amount of artificial cold that is much below 0 degrees, and much greater than sufficient, therefore, to freeze the salt water of the ocean: it would be possible by their aid to produce ice at sea, but more especially during any particular emergency, and by the thawing of which there would be obtained fresh water; as the salt in it separates during the act of freezing. Sulphate of soda, 8 parts muriatic acid 5 parts, thermometer sinks (Fahrenheit's) from X50 degress to 0 degrees Sulphate of soda, 3 parts, diluted nitric acid, 2 parts, thermometer sinks X50 degrees to—3 degrees. Phosphate of soda, 9 parts, diluted nitric acid, 4 parts, thermometer sinks from X50 degrees to—12 degrees. Sulphate of soda, 6 parts, muriate of ammonia, 2 parts, nitrate of potash, 2 parts, diluted nitric acid 4 parts, thermometer sinks from X53 degrees to 14 degrees. Phosphate of soda, 9 parts, nitrate of ammonia 6 parts, diluted nitric acid, 4 parts, thermometer sinks from X50 degrees to—21 degrees.

If the temperature is warmer than 50 deg., when the foregoing ingredients are mixed, the effect will be proportionably greater; thus if the most powerful of the mixtures be made use of, when the air is X83 degrees (or 33 degrees higher than 50 degrees), the thermometer will sink nevertheless to 0 degrees, being in the latter case a diminution of 88 degrees, while in the former it was only 71 degrees.

But should the temperature in the first instance be higher than 83 degrees, not only the brine, but the materials for mixing, more especially, should be previously cooled by one or other of the preceding mixtures, and in this way an intense cold may be produced in any climate.

Thermometers.

There are four different thermometers used at present in Europe, differing from one another in the number of degrees into which the space between the freezing and boiling points are divided: these are Fahrenheit's Celsius's, Reaumur's and Delisle's.

Fahrenheit's thermometer is used in Britain. The space between the boilin g and the freezing points are divided into 180 degrees, but the scale begins at the temperature produced by mixing together snow and common salt, and which is 32 degrees below the freezing point. From the zero then (0 degrees) to the boiling point in this thermometer there are 212 degrees.

The thermometer of Celsius is used in Sweden and in France, where it is called *Thermometre Centigrade;* in it the space between the freezing and boiling points are divided into 100 degrees; the freezing point is therefore marked 0 degrees, the boiling point 100.

The thermometer known by the name of Reaumur's Thermometer, but which was, in fact, constructed by De Luc, is still used in Italy and Spain, but very little in France. In it the space between the freezing and boiling points is divided into 80 degrees.

Delisle's thermometer is used in Russia. The space in it between the boiling and freezing points is divided into 150 degrees, but the graduation begins at the boiling point, and increases towards the freezing point. The boiling point being marked 0 degrees, and the freezing point 150.

Mercury freezes at 39 degrees below zero, but alcohol has never yet been known to freeze, pure alcohol. It is therefore better than mercury to test the different degrees of cold.

Nautical Monster.

The British Builder gives the following conjectural account of some anomalous mechanical monster which is in progress of creation at Liverpool:

"The 'mysterious machine,' for some time in course of preparation, has still a local habitation and a name, at least, if only half a reality. A witness 'attempts' to describe it, as well as he can, but he admits that he cannot make either head or tail of it. It is tubular, 120 feet long, and 35 in girth at the broadest part, which is at one end of it—whether head or tail, deponent knoweth not, It is built of pine-plank, air-tight and free of knots. The entrance door is at one side, and he talks of ante room and public saloon, a winding staircase to a 'good-look-out' in the roof, &c., all in the belly of what appears to be so 'very like a whale' or a Trojan horse. It will take two years more to finish it in the 'superior style' in which it is being fitted up, at least for one hundred 'passengers; but, whether through the heaven above, the earth beneath, or the water under the earth, is a mystery as yet profound as chaos itself. May not this ingenious conundrum be some new fangled canal boat, or a steamer for diving into smooth water under the stormy surface of the ocean, so as to to ensure smooth sailing—to the bottom at least—if not to ensure the lives of those who are evidently expected to follow by the lot the special example of Jonah?"

A store has been opened in Broadway, this city, for the sale of mourning dry goods.

For the Scientific American,

Mineral Wealth of Russia.

Many have been surprised at the amount of gold which the Emperor of Russia has been able to throw lately into the French and English Funds. But as regarding the extent and resources of that vast empire, there is so much ignorance and so little knowledge, that no wonder that we were surprised when Douglas Jerrold declared, that if Nicholas at the present moment demanded his pay, England would be bankrupt to the biggest despot in the world We have been imbued with the idea that Russia generally, was a cold, barren, pine clad country, but instead of this nature has endowed her profusely with spices from all her kingdoms, and not less so with metals and minerals, as the following statistics, which we have collected from various sources will abundantly testify.

Nearly all the metals are found in Russia of a superior quality. Mining has been rapidly progressing there, more especially since 1815, when the Duke of Leuchtenberg, the supreme head and director of the mining works in Russia, by his scientific knowledge, profitably explored the mining districts. The principal mines are in the Ural mountains, and in Siberia. Ever since 1815, very rich gold sand has been found on the Ural, upon an area of about 3000 English square miles. Alexander Humboldt calculates that Russia gains annually, upon an average, from her mines $2,772,000 in gold and $1,684,000 of silver. In recent times, Russia's gain in gold (to which is added ever since 1830 a considerable amount of platina,) has progressed to an enormous rate. In 1841 the total weight of gold gained in the Ural and Altal mines, already amounted to 53,633 lbs., while that of platina had risen to 3960 lbs. The gold mining works of the Ural had furnished in the same year 1242 lbs., while the gold of Eastern Siberia amounted to 20,729 lbs. The richest mines, are now, however, in the district of Taglisk, belonging to the family of Prince Demidoff. From 1824 till the end of 1833, platina was coined to the amount of $6,339,770 of silver Platina, however, having been found more useful for chemical ends, a stop was entirely made in the coinage of that metal by an ukase in 1846.—In copper, Russia gained already, in 1840, about 9,232,000 lbs., and in iron nearly 480,000,000 lbs., but has considerably increased of late. The lead found there is not of a superior quality, and the quantity hardly covers the consumption of the country. Granite, porphyry, malachite, and other species of stone are found in vast quantities, and superior in size and beauty. Finland is peculiarly rich in granite, and the lofty Alexander statue before the winter palace at St. Petersburg, and the pillars of the Kazan church, are erected of that stone. In 1829, the first diamond was discovered in the gold sands of Countess Polier—neither is there any lack in precious stones. Universally known is the Russian isinglass, which is found upon an islet in the White Sea, in tables of the size of a square foot. Porcelain and argilaceous earth are furnished by Siberia and Tauria. Extremely rich is the country in salt, and more especially in the boundary provinces towards Asia, and the produce may be calculated to amount to about 1,600,000,000 lbs.

The whole of Europe together with Asiatic Russia furnishes $3,278,000 in gold and $2,476,000 of silver.

Veins of Platina have lately been discovered in France, which we hope will lessen the price of this metal, and confer an everlasting boon upon chemical and electric science.

Louis Phillipe and the Bell.Ringers.

His Majesty, the King of the French has been entertaining the Lancashire bell-ringers or rather they have been entertaining him, at the palace of St. Cloud. Louis Phillippe who is a perfect master of English—we mean the language not the nation—conversed very freely with the bell-ringers, and after praising the great variety of their changes, asked them if they could by any means of their bells give him any idea of the great Sir Robert Peel.—*Punch.*

In a copy of an old work not now extant, on "Necromancy," is the following quaint passage: "Ques.—How to raise a devele?—Ans.—Contradict your wyfe.

Michael Buonarotti Angelo.

This celebrated painter was born in 1474. He was not only a distinguised painter, but a sculptor and architect. In architecture he surpsssed all moderns, and he was the greatest designer ever known. The most celebrated of his paintings, is the "Last Judgment." His architectural abilities are best displayed on the Church of St. Peter's at Rome. His style is that of grandeur and sublimity, united with the utmost sublimity and beauty. Sir Joshua Reynolds delared that the last words he wished to utter from the Academic chair, was the name of Michael Angelo. Between Angelo and Raphael, there was a warm rivalry. The Farnesian family had built a house upon the banks of the Tiber, and the halls of which Cardinal Farnese wished to have adorned by the pencil of Raphael. The artist accepted the proposals of his eminence, but stipulated that no one should inspect his work until it was finished. The highly colored reports of which the friends of the artist spread abroad, respecting the triumph which the painter had achieved, so inflamed the curiosity of Angelo, that he swore by the "Interns of Dante," that he would gain admission into the Tarnesian villa, and examine the works of Raphael. Having discovered that Raphael went late to his work, Angelo disguised himself as a vender of brandy, and taking a huge basket filled with biscuit and the liquor, directed his steps at an early honr to the gates of the palace. His cries of, "brandy! brandy!" roused the masons—the gate was opened and Angelo quickly admitted. The workmen were busily employed upon the biscuit and brandy and he passed through the coridors and was soon before the frescoes of his rival Noticing a scaffold and wall in readiness for the painter he ascended and he drew with a piece of charcoal, a gigantic head of Jupiter, after which he left the villa percipitately, without stopping for his basket. When Raphael arrived and beheld the splendid head, he exclaimed "Michael Angelo!" From that day he painted no more in the farnesina, and all of his works remained unfinished.

Repartee.

A Quakeress preaching at Nantucket, said, "Every tub must stand upon its own bottom." A sailor jumped up and said, "But madam, but suppose it had no bottom!" "Then it is no tub," returned she quickly, and went on with the sermon.

Genuine Bull.

It is said that when Miss Edgeworth's Essays on Irish Bulls appeared, the Farming Society of Ireland, supposing the work to relate to the kind of animal called by that name, ordered twenty copies.

An Irishman trying to put out a gas light with his fingers, cried out, "Och murder the divil a wick's in it." This reminds us of a printer from the country on his coming to work in a city office and wishing to light the gas, asking the foreman if he "would show him how to touch off them candlesticks."

Queer Enough.

It was lately decided in an English Court that the absence of a man from his wife four years in America, made her a widow.

Rare Felicity.

Col. Webb of the Courier and Enquirer, in a commendatory sketch of Lt. Thorn says:—"We are happy to add, that Lieut. Thorn has been so fortunate as to distinguish himself in all the recent affairs, and he has been twice wounded."

Independant Voting.

John Randolph once avowed himself decided in favor of the Fall Elections. He said he wished the voters to appear at the polls, when they could feel their independance.' 'In the spring, said he, the people have corn to buy—in the fall they have it to sell; and they always feel more independant when they have corn to sell, than when they have it to buy."

Slaughter.

Within the last two years 373,400 oxen and sheep have been slaughtered in New South Wales, in order to boil their carcases for the tallow.

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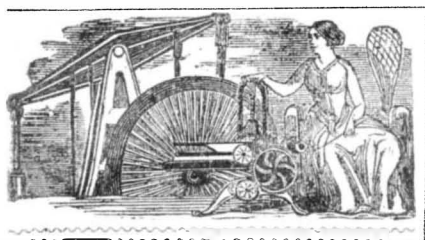


New Inventions.

Locomotive Snow Plough.

Mr. Daniel Stilwell of Philadelphia, has invented a new snow plough which has been highly commended for apparent superiority. It consists of an inclined plane several feet in width, the lower part of which approaches within a few inches of the rails; upon the plane there is a mole which diverges to a little point. It works upon a pivot, and can be managed with ease from the platform at the rear. The mole can be shifted from one side to the other, wherever its use is most required This contrivance materially differs from any other plough in use: its pressure is equal on both sides, and the snow can be thrown entirely off the track. The machine runs on wheels similar to those attached to the cars, and is placed in front of the locomotive.

Novel Machine.

Mr. Stephen Bowerman, of Detroit Michigan, has invented and is exhibiting in Washington, a very novel machine for taking the yeas and nays in legislative bodies. It is especially intended for the use of Congress. By the proposed arrangement a mere glance of his eye informs the clerk whether there is a quorum present; and the yeas and nays can be enumerated and pointed out in the course of a minute or two after the votes have been cast.

New Method of Propelling Cars.

Sometimes there are retrograde movements in science some persons snatching up something that has been tried and laid aside as useless and fondly imagining that they have arrived at the El Dorado of mechanic Invention This appears to be the case with an invention recently patented by Messrs. Carter and Cunningham of England.

The rails, it is said are not so heavy as the rails in common use, and no locomotive is used. The power used is atmospheric, made to operate the pistons of a great number of small engines which are placed along the line of rails and connected to a pipe under ground, from which the air is continually exhausted, by steam engines.—These small engines give rotary motion to a number of wheels placed horizontally, in sets of three each, at a distance of about 300 feet apart, along the rail. The passenger or freight cars next have a rail extending along their sides from end to end, which is regulated so as to come in contact with the peripheries, of the aforementioned wheels. The small air engines are set in motion whenever a car comes in contact with the horizontal wheels—a valve being opened by one of cars as it approaches, and the engine operates only long enough to pass the length of the car. The idea is for these wheels to give sufficient momentum ro the car to send it along to the next set of driving wheels, and so on throughout the whole line. This constitutes the base of the invention; besides this, there are arragements for stopping and starting, and for the prevention and cure of accidents, &c., all of which are said to be admirable, but which we think is like the famous mechanical strategy of using a steam engine to throw water to the top of a hill for the purpose of driving a water-wheel.

Tunnels.

A Mr. Renny, of Brookville, Indiana, proposes to construct carriage roads under the beds of rivers, by which he designs to connect towns on opposite sides, by making a perfect street from one to the other, running under the water on the bed of the river. The tunnel or street is made of malleable or boiler iron, rivetted together in the same manner as steam boilers. Its shape is nearly that of two thirds of a circle; its size unlimited. His present drawing represents one 22 feet wide, and 15 feet high, leaving a carriage way each side on the centre 9½ feet in the clear and 13 feet high—footpath in the centre above carriage way 7 feet high. The cost is estimated by Mr. Renny, at about $200 per foot, and he is of opinion that it would be a good investment for capitalists.—*Ex.*

This is certainly not a new idea, with the exception of the price, which we pronounce to be fabulous, beyond the shadow of a possibility.

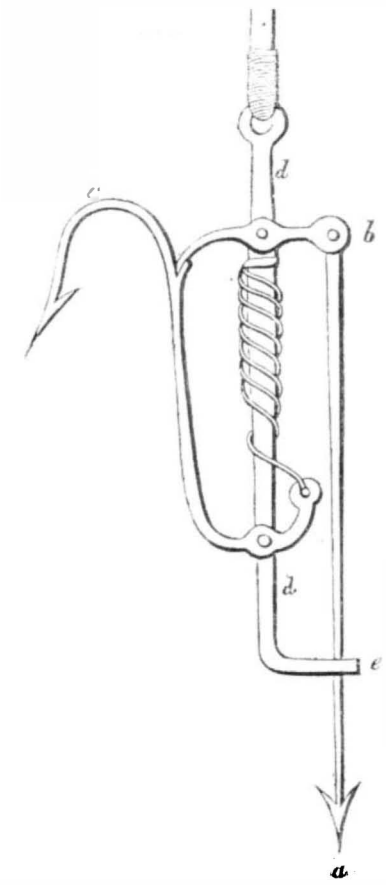
New Paving.

A new mode of paving has been substituted for the old one. The stones are now placed two or three inches asunder, and the intervals are choked with small gravel, through which asphaltum is poured so as to render the whole impermeable to water from above, and afford a firm footing for horses.

If India rubber and sulphur were added to the asphaltum the paving would be more durable.

Improved Fish Hook.

COMMUNICATION.



This invention relates to improvements in fish hooks, by combining them with apparatus for retaining fish with more certainty than at present, and by which a person not skilled in the art of fishing may, nevertheless, succeed in taking fish, the apparatus being to a certain extent, self-acting. This cut exhibits a self-acting fish hook when ready for receiving a bait; the hook or barbed instrument, *a*, on which the bait is to be suspended, is, in this instance, attached by a moveable bearing to the lever catch, *b*, which takes into a notch in the hook, *c*, and which hook has at all times a tendency to press downwards, owing to the action of the spiral spring surrounding the stem *d d*, and which spring as seen in the cut, is in a state of tension. In the stem of the hook, at *e*, is a hole or guide, which serves to regulate the barbed instrument *a*, in its descent, and which barbed instrument being at any time jerked or pulled upon by a fish taking the bait, causes the catch *b*, to be liberated, upon which the hook *c*, rapidly descends and performs the part of a retaining instrument. In the above cut both the hook and the retaining instrument are barbed, but the apparatus may be varied, and instead of employing a barbed instrument similar to *a*, it may be curved, and bear a great resemblance to an ordinary fish hook.

New Coloring Substance.

By the Chemical Gazette we perceive that a patent has lately been taken out in England, by C. A. Kurtz, of Manchester, for the manufacture of a new material for making a fast brown color. The manner of preparing it is "to put into a vessel containing a hundred gallons of water 132 lbs. of logwood and boiling then for a long time, then cooling a little and adding 30 lbs. of nitric acid gradually, and afterwards adding s0 lbs. of potass," to facilitate the use of the mixture in dyeing and printing. This mixture is made portable by mixing it with pipe clay and drying it. To dye with it, a sufficient quantity is dissolved in water, a little tartar is added and the article kept boiling till the desired shade is obtained. For printing, the material is to be mixed with gum in the common way and some tartar added as for dyeing, and the fabric is said to be steamed to fix the color.

We venture to say that the inventor will not make his great fortune out of this discovery, if the above is a correct description. It does not state whether it is for dyeing or printing cotton or woollen goods, and they are essentially different in their nature. For browns on woollens, at least *claret browns*, the present common method is more cheap and simple. It would appear as if ~~designed~~ principally for ~~woollen~~ goods, except in printing, and in that case a cheaper brown color can be made from a strong extract of catchecue and nitrate of copper, or logwood and bark yellow with a little muriate of tin and alum, varied in proportions according to the shade wanted.

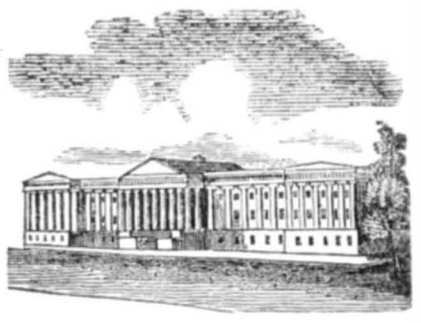
Saw Mill Improvements.

The following is the patent claim of J. W. Cochran, the young American whose invention was noticed some time ago in the Scientific American, as having been most favorably received by the British Admiralty, Mr. Cochran is now residing in London but he belongs to this city. His patent was granted at Washington on the 11th of this month, and is for improvements in saw mills, for sawing warped or curved surfaces. Claim.—Having now described the nature of my said invention and the manner in which the same is to be performed in the manner aforesaid, I hereby declare that I claim as my invention for which I am desirous of securing Letters Patent.—Firstly, the mode of constructing saw mills or machines with revolving or turning chuck plates, and oscillating or turning immediate roller supports, for the purpose of holding, sustaining, or supporting logs or pieces of the timber whilst being cut, such chuck plates or supports being made capable of being turned by the machine itself, or by hand, for the purpose of varying (when necessary) the bevils of the cuts are to be made by the mills or machines for the purpose of producing pieces of timber of the required shapes. Secondly, the mode of giving the motions to determine the curves, and to remove the supports of sawmills, as aforesaid, by means of a pair of conical drums connected by bolts or bands, and furnished with graduated scales, for the purpose of enabling the attendant workman to regulate the motions of the parts that hold and support the pieces of timber, so that the bevils or curves of the cuts to be made in such pieces of timber as may be varied in the manner necessary for cutting such pieces of timber into the regular shape. Thirdly, the mode of constructing the chuck plates as aforesaid, with the jaws or clips thereof, mounted upon an eccentric motion, that is to say, upon a foot or piece fitted into a groove so as to be capable of sliding latterly therein from the centre of the chuck plate for the purpose of bringing the centres of gravity of logs, or pieces of wood, of irregular shapes within a centre line drawn between the centres of the chuck plates. for the balancing of such logs, or pieces whilst they are being cut or shaped in the mill. Fourthly, the mode of constructing the jaws or clips, of such chuck plates as aforesaid, with quadrant slats, and so that one of the jaws or clips, thereof may be turned towards either side for the purpose of better and more securely holding logs or pieces of timber of crooked or irregular forms, while being cut or shaped in the mill as hereafter described. Fifthly, the mode of mounting saws in stretchers as herein before described in combination with the mode hereinbefore described of mounting such saws with their stretchers within a saw-gate or frame, so as to be capable of sliding latterally in either direction within the saw-gate or frame.

Galvanized Types.

Mr. Coblentz a typographical printer in France, recommends the galvanizing of printing types, in order to render them more hard and durable.

London and Vienna are to be connected in a short time by a line of electric telegraph.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending Dec 11, 1847.

To A. W Whitney, of Woodstock, Vermont, for improvement in machinery for working Sheet Iron, &c. Patented Dec. 11, 1847.

To Cornelius Briggs, of Roxbury, Mass., for improvement in Sofa Tables Patented Dec. 11, 1847.

To Nathaniel F. Potter, of Providence, R. I. for improvement in Kilns for Drying Grain. Patented Dec. 11, 1847

To Leman Baker Pitcher, of Syracuse, N. Y., for improvement in Regulators for Machinery. Patented Dec. 11, 1847.

To Ephraim K. Chamberlain, of Cincinnati, Ohio, for improvement in apparatus for Club Feet. Patented Dec. 11, 1847.

To John W. Cochran, of New York City, for improvement in Mills for sawing warped or curved surfaces. Patented Dec. 11, 1847.

To John W. Hood, of Mount Sterling, Ky., for improvement in Abdominal Supporters.—Patented Dec. 11, 1847.

To Thornton Grimsley, of St. Louis, Missouri, for improvement in Dragoon Saddle Trees. Patented Dec. 11, 1847.

ADDITIONAL IMPROVEMENT.

To L. R. Livingston, J. J. Roggen, and Calvin Adams, of Pittsburg, Penn., for improvement in the Shanks of Door Knobs. Patented July 7, 1846. Additional Improvement dated Dec. 11, 1847.

For the week ending Dec. 18, 1847.

To Charles B. Kingsbury and John Kingsbury, of Utica, N. Y. for improvement in self-acting Cheese Presses. Patented Dec. 18, 1847.

To William Hovey, of Worcester, Mass., for improvement in machinery for grinding Knives which have warped surfaces. Patented Dec. 18, 1847.

To John F. Winslow, of Troy, N. Y., for improvement in rolling and compressing Puddlers' Balls. Patented Dec. 18, 1847.

To Lansing R. Swan, of Rochester, N. Y., for improvement in Galvanic Batteries for Telegraphs Patented Dec. 18, 1847.

To George Ketchum, of Marshall, Michigan, for improvement in Pumps for raising water. Patented Dec 18, 1847.

To John H. Rector, of Syracuse, N. Y., for improvement in muzzles for Rifles. Patented Dec. 18, 1847.

DESIGN.

To Lucius O. Palmer, of Utica, N. Y., for Design for Stoves, (having assigned his right to John F. Seymour.) Patented Dec. 18, 1847.

INVENTOR'S CLAIMS.

Heating Wheel Tires.

By Alva Gregory, of Pike, Wyoming Co., N. Y. Improvement in the mode of heating Wheel tires Patented 28th August 1847. Claim—What I claim as my invention and desire to secure by Letters Patent is the invention of a circular furnace for heating carriage tires by confining the heat above described, and in carrying out that principle. I do not intend to limit myself to any particular materials or dimensions in constructing the furnace; whilst I attain the same end by substantially the same means.

Clasp Catches.

By James Bingham of Philadelphia, Penn., Improvement in Catches for clasps. Patented 11th September 1847. Claim—What I do claim as my invention and desire to secure by Letters Patent is the fastening the pin or wire to the hinge catch or coupling joint firmly to the mole side of the hinge, in combination with the longitudinal slot through the female portion of the joint in the manner above described

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NEW YORK, DECEMBER 25, 1847.

Progress of Chemical Discovery.

Chemistry is perhaps the oldest, and yet it may well be named the youngest, of the sciences. The field for the chemist yet to explore, is still as boundless as imagination can conjecture. This is no extravagant assertion, for the great and wonderful discoveries recently made, such as the electro-telegraph, daguerreotype, and etherization, are not so much the result of mechanical research as of accidental discovery, and this is strong evidence that we have but crossed the threshold of the vast theatre, where are yet to be exhibited discoveries which will far surpass those already made, wonderful though they be, in grandeur and importance.

Before the commencement of the last century, Chemistry was looked upon as something which belonged exclusively to feats of mountebankery, or tricks of necromancy, and not until that grand upheaving of mind, the French Revolution, was there an impetus given to correct investigations in this science.—But then, as if political ferment had thrown up some new combination of materials, Lavoisier, De la Isle, and Bergman and Davis, arose like stars amid the darkness of physical research, and new theories were laid down and new principles developed. In 1784, the Abbe Hauy published his famous Essay on Crystals, and determined by analysis and trigonometrical measurement the " forms of the neucleusses and elementary particles," and his treatise in 1801 on Mineralogy almost created a new science, although this science had been much cultivated, yet secretly, in the College of Dresden, in Saxony.

Electricity, now so universally known and used for so many important purposes, was unknown, we may truly say, to the world until 1750, when Franklin made the string of a kite a pathway for the mighty thunder cloud to visit earth and chained it to an iron key.

Galvanism, which is now applied to send messengers of thought from city to city, on strings of copper, swift as thought itself—galvanism that is used to analyze the most stubborn oxides and reduce them to their primary condition—galvanism that is used to gild, to plate, to deposit metals in definite forms—in short, now used in every trade and every art and yet but in its infancy as a science, this wonderful agent, this powerful, and as yet unresolved in materiality, was unknown to the world before 1790, when it was discovered by Galvini, but left till 1800 for Volta to explain by the invention and construction of the Voltaic Pile.

The nature of heat, at least its effect upon different substances, was but little known until 1760, when Dr. Black made the discovery of latent heat being retained in every substance according to it kind, and determined the laws of water evaporation, reduced steam expansion to a theory and led to the discovery of the steam engine in 1765 by Watt. Before that period the steam engine may be said to have been unknown, and then there was not more than three in the whole world and these were atmospheric ; but who now can calculate their number and power. Before 1811 there was not a steamboat in the world. How many are there now and what could we do without them ? Before 1830 there was not a locomotive in the world. How many are there now and what could we do without them ? Before 1809 the number of metals known was only twenty seven, and ten of these had been ascertained in twenty years previous, as many as were discovered during all the middle ages, the ancients knowing only seven, which were compared to the notes of music in the gamut, the number of plants and the color of the rainbow, giving rise to many superstitions. We now know forty four metals and ten times more acids than the ancients did, and the end is not yet.

Physiology.

It cannot be doubted that the greatest " study of mankind is man," whether morally or physically. Dr. Liebig has done much within the past few years to advance the science of Physiology, but when we behold the life of one of our most eminent physicians, Dr. Wainright, sacrificed in a few hours to the bite of a reptile, and the poison, as Audubon says, " not more than would lie on the head of a pin," and a remedy baffling the zeal and skill of the most learned of the faculty in our city, we may well say that there is yet a great amount of ignorance regarding this branch of physical science, although it has been fostered and favored by every government and has received for centuries the attention of the most learned of any class of men. It is a truth that many discoveries have been made, which have conferred immortal worldly honor upon the names of the discoverers, although their researches have not benefitted the human family in the least. To those philosophers and eminent chemists who speculate upon the possibility and certainty of those things which are liquid on this globe being gases in Saturn and solids in Jupiter, we would in all humility say, that for the sake of progressive science, we would rather see a man treading the earth with the sober footsteps of the Wandering Jew, than mounting the sunbeam with the wings of Icarus.

English Manufacturing Population

Mr. Gaskill, in his work on the situation of this industrious class of the English says:—" Any man who has stood at twelve o'clock at the single narrow doorway which serves as the place of exit for the hands employed in the great cotton mills, must acknowledge that an uglier set of men and women, of boys and girls, taking them in the mass, it would be impossible to congregate in a similar compass. Their complexion is sallow and pallid —with a peculiar flatness of feature, caused by the want of a proper quantity of adipose substance to cushion out the cheeks. Their stature low—the average height of four hundred men, measured at different times and different places, being five feet six inches, their limbs slender and playing badly and ungracefully, A very general bowing of the legs Great numbers of girls and women walking lamely with raised chests and spinal flaxures Nearly all have a down-tread differing very widely from the elasticity of action in the foot and ankle attendant upon perfect forming, a spiritless and dejected air, and an appearance, taken in the whole, giving the world but little assurance of a man, or if so " most sadly cheated of his fair proportions." Beauty of face and form are both lost in angularity while the flesh is soft and flabby to the touch and yielding no " living bound" beneath the finger.

Self-Acting Leg.

Among our English papers we find an advertisement of " Grossmith's new self-acting leg" which states that it is not more than half the weight of the common cork leg, is made to correct nature in shape and action, enables the wearer to walk, ride, or dance, with perfect ease and comfort, is suited to all cases of amputation, and is less expensive than any other. Santa Anna must have had on one of these legs when he ran away from General Scott at Mexico, for his excellency was never known to exhibit any thing like cowardice before. It would be wrong to attribute to cowardice what might happen from the use of a self-acting leg, and we therefore hope our brethren of the press will make l'amende honorable. We expect some day to see carriage bodies placed upon these patent self-acting legs, hopping up and down Broadway. The use of wheels and horses will then be laid aside, conveyance will become quick and cheap.

Extra Judicial Oaths.

Russell S. Furney, of Chicopee Falls, has been held to answer in the sum of $200 at the Common Pleas Court, on the charge of administering an unauthorized oath in an investigation before the tent of Rechabites in that village. The statute of Connecticut provides a penalty of not more than $200 nor less than $5, for administering or taking an oath not required or authorised by law.

Electro-Gilding.

PART III.

We have already stated that it is of the utmost importance to have all articles intended for plating or gilding, perfectly clean, free from all oxide and grease. After the directions already given for this purpose, there is another method of preparation lately discovered, whereby both bright and dead deposits of gold are effected through the agency of a preparation of mercury by dipping the articles, after being cleaned, in a solution of proto-nitrate of mercury, washing these well, rubbing them with leather and dipping till the whole surface is perfectly coated, and according as the parts have been burnished with the leather, so will the deposite be bright or dead gold. Mercury receives a bright polish with careful brisk friction. Mercurial coating as a basis for gilding is very valuable, as it promotes a close adherence between the metals, and a coating of any thickness of gold may be thrown down, and the mercury may be afterwards driven off by heat.

CLEANING ELECTRO-PLATE.

Dead silver plating is apt to turn yellow after exposure to light for some time. This can be removed by covering the articles with a thick layer of dissolved borax, placing them in a muffle and submitting them to a heat sufficient to calcine the borax, when they are thrown into a solution of water and sulphuric acid (not strong) and allowed to remain for some time, when they are washed in warm water and dried in hot saw dust, then on a stove, when the result is a pure dead white. The natives of India clean their tarnished silver articles by boiling them for a short time in an earthenware vessel along with a few tamarinds and water, when they become clear and white.

Electro gold articles have sometimes a brassy appearance, which is removed and a fine rich gold color left, by covering the article with a composition made of melted wax mixed with saltpetre, sal ammoniac and sulphate of iron and heating it till the mass begins to smoke. This composition can be easily removed afterwards

There are innumerable compositions for electro-gilding and plating. Every different shop appears to have some peculiarity of its own, but it is presumed that the foregoing will be new to many. One foreign chemist, M. Perrot, has endeavored somewhat successfully to gild with gold a watch and all its parts while in motion. Deposits of gold by the electrotype process have been made at Geneva for etching designs, the gold being used instead of varnish, as a thin layer of gold is transparent. A very thin film of gold on Daguerreotype pictures effectually preserves them

Galvanized iron is made most effectually by using the battery in a feeble state and submitting well cleaned iron plates to the action of the battery in a solution of weak sulphate of zinc. This process was patented, but it is not so simple as the plan of dipping the iron plates in chloride of zinc, like as tin plates are made.

A patent has been taken out in England for purifying iron ore from its sulphurate by applying a powerful electric current to the metal while it was in a state of fusion. An electric current passing through a soft rod of iron at a moderate heat has converted it into steel, but the expense has not made this process to supersede the old. The price is the regulator of the value of every discovery. A patent was also taken out in England for a new process to reduce copper from its ore by means of an electric current, by roasting native sulphuret of copper in the usual way, then melted with lime and soda as fluxes and the pot connected with the battery so as to be the negative pole, and a plate of iron being connected with the positive pole it is found that in a short time a solid mass of copper is deposited on the inner surface of the pot.

Another patent was taken out in England by a Mr. Ritchie, for extracting copper from its ore by dissolving roasted copper ore in a weak sulphuric acid and placing the solution in a large vessel deposits the copper by the electrotype process. We are positive however that this is a more expensive process on a large scale than by the old plan.

Magneto-electro plating has been done by a machine generating currents of electricity by coils of wire made to revolve in front of magnets, the currents being modified by the speed of the coils and their distances from the magnets. This machine is expensive and requires a power to work it. It never therefore will be used extensively.

Gold and Silver.

It is stated in Jacob's essay on the precious metals, that in the ruins of Herculanaum, and Pompeii, which were destroyed by an eruption of Vesuvius, more than seventeen centuries ago, no ornaments of gold or silver has been found. In some of the houses of Pompeii, skeletons of the inhabitants have been discovered—in all, domestic utensils, and personal ornaments—but those for which in the present day, the precious metals are almost exclusively adopted by the middle class of persons, are composed of iron and brass, If gold and silver had been in the dwellings of the inhabitants, at the time the eruption took place, they would be found there at the present moment, as the iron and bronze have been, of which their spoons and forks were made; and which have retained their shape after the lapse of so many years.

It appears, however, if ancestry can be believed in aught, that the ancient oriental nations were in possession of more gold and silver than we are at the present day.

Perpetual Motion.

A correspondent of the Midland Counties (Eng.) Herald, says : " A frame work knitter of Hinkley, namd Joseph Hutt. has, after 20 years application and study, completed a machine which he calls a self-moving machine, or perpetual motion. He set it in motion on the 25th of August last, since which time it has continued to work with the greatest regularity. The motions of the machine are both quick and powerful, and may be greatly increased and applied to any purpose. It does not require the aid of steam or any other power to keep it in motion, having one continued and regular motion of its own. Fudge !

Fortunate Escape.

A servant-girl, says the Louisville Democrat, having in charge a baby of some two years of age, was amusing it on a balcony or piazza, and leaving but an instant, the child stepped back, fell through a banister, and was precipitated below, a distance of about 26 feet. The remarkable part of the story is that the father of the child had, not one minute before brought from the lower room, a cot bedstead and spread it out on the precise spot where his child fell; thus saving it from serious injury.

Interesting Relic.

A new Methodist Church was recently dedicated at Watertown, Mass. The vane surmounting the spire of the church was presented by the Unitarian Society, and is an historical relic—being the identical one which graced the spire of the building in which the first Continental Congress was held.

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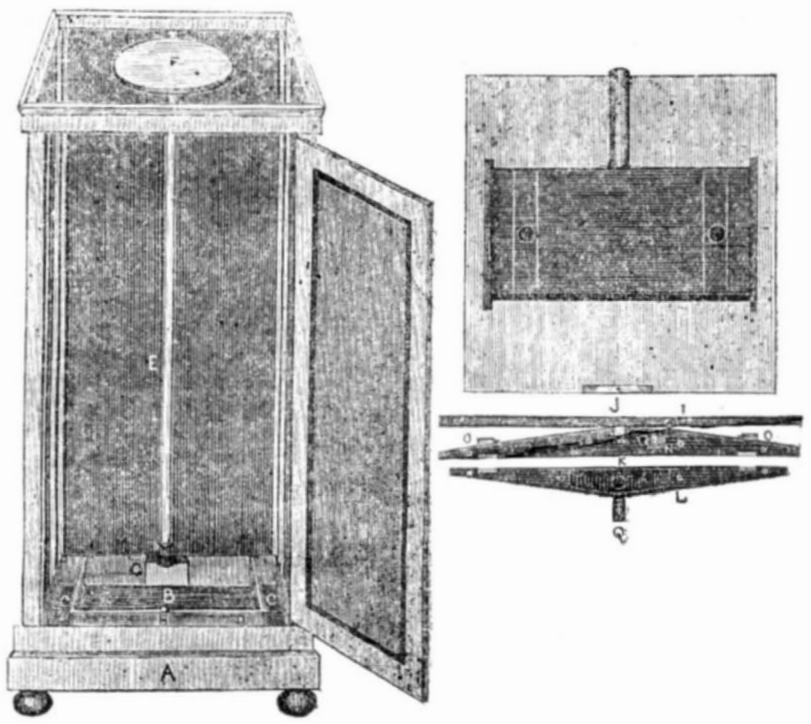
Biscuit Machinery.

The following description of the machinery for making biscuit for the English Navy, at Gosport, Eng., is taken from a serial publication entitled "*The Land we Live in,*" now in course of publication in London.

The biscuit machinery at Gosport is as complete a thing in its way as the block machinery at Portsmouth; and the saving which it has effected in manual labor is not less striking. To understand properly the improvement in this respect, it is well to know how sea-biscuits were formerly made. The flour and water were put into a large trough, and mixed up by the naked arms of a workman called the driver—a slow and very laborious employment: this dough was then kneaded by a roller, worked over and upon it in a very odd manner. Being rolled and kneaded into a thin sheet, the dough was cut into slips by enormous knives, and these slips cut into small pieces, each sufficient for one biscuit; each biscuit was worked into a circular form by the hand, stamped, pierced with holes, and baked. The placing in the oven was a remarkably dexterous part of the business. A man stood before the open door of the oven, having in his hand the handle of a long shovel, called the peel, the other end of which was lying flat in the oven. Another man took the biscuits as fast as they were formed and stamped and threw them into the oven with such undeviating accuracy that they always fell on the peel. The man with the peel then arranged the biscuit side by side over the whole floor of the oven. Seventy biscuits were thus thrown into the oven, and regularly arranged in one minute: the attention of each man being strictly directed to his own department; for a delay of a single second on the part of any one man would have disturbed the whole gang. But, well arranged as this system appears to have been, it could not maintain its place against the efficiency of machinery. Portsmouth, Plymouth, and Deptford, have all of them biscuit making machinery on a magnificent scale. We can almost say that we see corn go in at one end, and see the buiscuits come out at the other.

The corn is ground by mills in the usual manner; and the meal or flour descends into a kind of hollow cylinder, where the requisite quantity of water is added to it. Round and round the cylinder revolves, and a series of long knives within it so hacks and cuts, and divides the contents, that, as the meal and water become mixed up into dough, these knives knead it in a way that has never been equalled by human arms. Not a lump or an ill-regulated mass can escape the close action of these knives; all is cut through and incorporated in an equable state among the rest of the dough. But we ought not to say that the dough is kneaded by this means; it is only mixed. The kneading is performed by ponderous masses called breaking rollers. The dough is spread out flat on an iron table, and two rollers about a ton weight each, are worked to and fro over it until the dough is perfectly kneaded. The celerity with which these operations are conducted are quite marvellous. It is said that two minutes time is sufficient for the thorough mixing of five hundred weight of dough in the cylinder; and that five minutes suffice for kneading this dough under the rollers. The sheet of dough is brought to a thickness of about two inches; it is cut into pieces half a yard square; and each of these is passed under a second pair of rollers, by this it is extended to a size of about two yards by one, just sufficient in thickness for the biscuits to be made. A very remarkable cutting instrument is then made to descend upon the thin sheet of dough, by which it is, at the one stroke divided hexagonal or six sided biscuits each of which is at the same time and by the same blow punctured and stamped. The biscuits are not actually severed one from another; so that the sheet of dough still remains so far coherent as to be put into an oven in its unsevered form. A flat sheet of about sixty biscuits (six to the pound, on an average) is put into the oven, baked for about ten or 12 minutes, withdrawn, broken up separately, and stored away. All the sea-biscuits used to be circular; but it is found that there is a less waste of time and material by making them six-sided. It is pleasant to think that our jolly tars are not sufferers by this expeditious mode of making their sea bread. It seems to be admitted that the machine made biscuits are better made and kneaded than those made by hand. The three bakeries at the three arsenals before named, could produce when at full work six or eight thousand tons of biscuit in a year; which would effect a saving of ten or twelve thousand a year as compared with the old method.

DESHON'S LATE IMPROVED SHOWER BATH.



In using one of these improved Baths, the bather turns into the bottom of the Bath little or much water as desired, and steps into the Bath upon the top of a simple and conveniently arranged pump which sets on the bottom and inside of the Bath frame, and which is operated with the foot of the bather by gently rocking from one side to the other. This motion draws the water into the pump at valves O O, and forces it out at valves N N, into the side chamber formed in the side piece L, and through that into the pipe E, and so on to the basin F, from which it falls in form of a shower.

A, is the Bath frame; B, basin, or a part of the bottom that contains the water to be used. C, waste chamber or a part of the bottom that contains the water after being used; D, ledge between basin and waste chamber; C, conducting pipe; F, basin at the top of conducting pipe, the bottom of which is perforated to form the shower; G, stay for conducting pipe; H, stay for platform on pump, represented in the cut above the letter J; I, bellows pump without the girt of india rubber cloth that forms the sides of the pump chambers; J, the top of the pump; K, bottom of the pump; L, one of the pieces that are screwed on the sides of the top and bottom of pump, to make the chambers tight after the girt of cloth is folded round to form the sides of the chambers.—This piece has a slot or mortice cut into the under side so when screwed on the side of the bottom the valves N N, underneath it have room to work, as so forming a chamber for the water to unite when forced, from the chambers O,O, which is forced through into the elbow Q, into the pipe, E, and so on; M, thick leather hinge inserted into the top and bottom of the pump and wedged in tight on one side only; N, outside valves; O, inside valves, and chambers; P, water ways; Q. Elbow.

The bottom of the bath is so arranged that the bather can, by shifting a cock, use a little water over and over for hours if desired or can use 8 or 10 galllons separately, and can use it so as to have it fall moderately, or as if it had 5 10 or 15 feet fall. A working model may be seen and all information given to all who may be desirous of acquiring an interest in the city of New York, or in any territory unsold, by immediate application to Theodore F. Engelbrecht, General agent for the sale and introduction of useful and important inventions throughout the United States and Europe. Office 79 John Street.

Force of Periodic Vibration.

Many curious instances might be mentioned of the great effects prodced by periodic vibration. One of the most familiar, perhaps is the well known effect of marching a company over a suspension bridge, when the latter, responsive to the measured step, begins to rise and fall with excessive violence, and if the marching be continued, most Probably separates in two parts. More than one accident has occurred in this way, and has led to an order that soldiers in passing these bridges must not march, but simply walk out of time. Another curious effect of vibration in destroying the cohesion of bodies, is the rupture of drinking glasses by certain musical sounds. It is well known that most glass vessels when struck, resound with a beautifully clear and musical note of invariable and indefinite pitch. which may be called the peculiar note of the vessel. Now, if a violin or other musical instrument be made to sound the same note, the vessel soon begins to respond, it is thrown into vibration, its notes grow louder and at last it may break. In order to insure the success of this experiment, the vessel should not be perfectly annealed. However, the tendency to break is invariably the same.

Italy and the Pope.

The people of Italy says Dr. Baird, in his lectures, are active, ingenious. and laborious. The peasantry are very industrious.—Even the lazzaroni of Naples of whom so much is said, are not idle, from choice. Of their ingenuity there can be no doubt. It was the testimony of a British manufacturer who had hundreds of different nations in his employ, that the Italians are the most ingenious and skillfull workmen in Europe, the Swiss next, and the Scotch next. He places English last. If the Italians were not ground down by political and ecclesiastical despotism, and so governed that enterprise and industry are without avail, they would be one of the most energetic nations in Europe. The present Pope has made many improvements. He has enlarged the freedom of the press and encouraged the publication of the newspapers; he has encouraged trade, industry and education—the construction of rail roads and other internal improvements; reformed the administration of government, and organized a national guard. He has something like a legislature, and probably will soon have one in reality.

Women.

Women are too apt to run into extremes in every thing; and overlook the fact that neither personal beauty nor drawing room display are calculated to form permanent attraction, even with the most adoring lover. The breakfast table in the morning, and fire-side in the evening, must be the touch stones of connubial comfort; and this is a maxim which any woman who intends to marry should never lose sight of.

Canadian Correspondence.

Mr. Editor:—

I was fully aware, before seeing the notice in your paper, of your difficulty in furnishing your British American subscribers on account of the change in Post Office regulations;—but owing to the carcity of States money, I have delayed writing you, as I could not obtain money which would pass without a discount with you. I had paid I believe to No. 26, and for double the price of your paper I would not have it stopped or lose a number, and enclosed I send you $2, which will pay forthe paper this volume, by the end of which time I shall have made arrangements for the next, although Uncle Sam and John Bull's quarrels should interfere somewhat with our business.

The Canadians think that it is the best move for Canada that could have been made; for so long as the States offered such facilities for transporting their mail from Boston and New York, they had but little hope of being able to carry out the project of the Quebec and Halifax Railroad. This movement on the part of the States inspires them with new hopes and they will commence anew memorializing the English Government for a grant, and if the present arrangements continue they will effect it, and the States will then be as dependent on Canada for early foreign intelligence as Canada has been on the States for their letters. They have already started an overland mail from Halifax to Montreal. Mother England will see to it that her darling Canada will not be subjected to present inconveniences long. Yours, &c. A. J. P.

Hamilton, Canada West, Dec. 8, 1847.

TO CORRESPONDENTS.

"W. S. of Tolland Co., Conn."—We have been informed that the English patentee, Mr. Brooman, has applied for letters patent in the United States. There is but little of the raw material in the country. Messrs. Armstrong & Co., No. 132 William street, this city, are agents for the sale of bands and other articles made of it. We have but a small piece of it; it is of a light drab color.

"C. O. R. of Mass."—The glass slides of magic lanterns are painted with common paints for glass, then painted with black varnish on other parts to prevent the transmission of light except through the figure.

"D. G. N. of W., N. Y."—The best pipe for wells is lap-welded tinned iron, or cast iron if they could be tinned. Copper would be the best, only if the tin was destroyed by leaves, or any substance in the water which would affect the copper, it would not be so safe for use as iron. Galvanized sheet iron is excellent, only in the water there must be an absence of all matter that will affect the zinc. Lead pipes are the cheapest, and perhaps the best where the water is pure and care taken not to use the water that is drawn by the first three or four strokes of the pump.

"W. E. L. of Black Rock."—Your improvements in the harness loom appear to be valuable and so far as we can judge from your description without a drawing, there is nothing in the way of securing a patent. Whether improvements lately made in Lowell are of the same nature or not, we have not the precise information, but we think they are not.

"E. R. S. of N. Y."—Your plan for coupling and uncoupling rail road cars, is certain a desirable one. Its advantages are great, if it operates as you describe it. No couplings of the same kind is in use that we are aware of.

"J. S of W. N. Y."—Sec. 7, of the Act of 1839 of the Patent law says, that no patent shall be held to be invalid by reason of the purchase, sale, or use, prior to the application for a patent except on proof of abandonment to the public, or that it was purchased or used for more than two years pior to application for a patent. "All letters should be post paid to us, especially when making enquiries.

"W. B. of Maryland."—An answer to your enquiries will be found in our article on electrotype. See the voltaic condenser. The iron ceases to be a maguet after being separated for some time from the current.

"J. P. of Albany, N. Y."—Your plan for Kiln Dryers is nearly the same as one invented

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in Kalamazoo, Michigan, only yours is to dry by fire heat and the other dries by steam heat. The screw for moving the grain is nearly identical. Some other parts are different, but the principle of mechanical construction is not much different.

"J. H. W. of S. C."—We shall answer you in our next.

"V. B. of Schenectady, N. Y."—No. 4 is right, and will find firm supporters. So will No, 22. We have received numerous evidences of this lately.

"B. S. of Little Falls, N. Y."—There is much truth in what you say, but we are glad to perceive the right feeling rightly directed.

"R. J. of Md."—You never can expect to heat a room by a condenser. It was an exceeding great blunder to think of propelling an engine in this manner. Any one who is acquainted at all with natural philosophy knows that air when condensed becomes hot, or gives out its heat, but when it expands it absorbs heat.

"J. B. of Mass."—Your plan to drive an air engine by a water wheel, is feasible, but we venture to say that it will not be so considered by the majority of scientific men. It involves one good principle. Give it more thought, in detail.

"J. P. E. of Ohio"—Give your Perpetual Motion a more careful consideration. Make a fair experiment before expending money for a patent.

"J. A. of Conn."—We will give your matter due consideration

"A. J. G. of N. Y."—Your plan for an air bed appears to be excellent. We believe that nothing of the same nature has been patented.

"S. P. M. of Mass."—You can have an examination made at the Patent Office for the regular fee.

"J. K of New York."—See the 3d No. of vol. 2 Scientific American. The Patent Laws are published there.

"H. G B. of Michigan." and D. F. of St. Lawrence, Co., N.Y., we have answered you by mail.

Chapman's Drawing Book.

We noticed the first number of this work sometime since, and spoke highly favorable of it, as did nearly all the public journals in the country, but number 2, which is just issued, so far surpasses the first number that we are not only willing to endorse our first opinion of it, but pronounce it the very best series on that important art which has ever been presented to the public. They should be introduced into every school in the Union. A pupil may become master of sketching and drawing by obtaining the work, following the rules, and observing the perfcet form of the exercise plates. Price 50 cts., a number. J S. Redfield, & Co. Publishers, Clinton Hall N. Y. Orders received at this office.

Chambers Miscellany No. 9.

The publishers of this valuable work have issued another number, not less interesting than former ones. Berford, & Co., No 2, Astor House, agents for this city.

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Who will not subscribe ?—Among the writers of acknowledged talent in this country who are already engaged for the "Dollar Magazine," are those of Major M. M. Noah, C. F. Briggs, (Harry Franco of the Knickerbocker,) Rufus W. Griswold, B. Constable, T. W. Meighan, author of the "Revolutionary Sketches," "Legends of the Thirteen Colonies," and together with the names of many other of our most distinguished authors who will furnish occasional notices peculiar to this Magazine.

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Prepared for the Scientific American.

Manufacture of Gas.

(*Concluded from our last.*)

On the occasion of the illumination for the peace of 1814, when the allied sovereigns visited England—the Pagoda erected by order of the government in St. James's Park, was bril liantly illuminated with more than ten thousand gas burners, which were simultaneously ignited, and the gas light rose into the air with the majesty of a rocket—the whole appearing like a mass of living light. A splendid scene, presenting one unbroken volume of flame, lighting up the heavens and the earth as far as the eye could reach, with astonishing distinctness. This exhibition of the astonishing power of gas light, it is said, encouraged the justly celebrated chemist and architect who erected the splendid lantern on the Capitol at Washington, for the illumination of the Capitol grounds. To the mind of the chemist, it furnishes a successful precedent establishing the practicability of lighting an extensive area, by elevating a powerful concentric burner, several hundred feet above the object on which its rays are to fall. From the improvement in the construction of burners—and from the discovery and application of Oil gas. whose power and economy has been supposed to exceed far that of Coal gas, and that the illumination of the Capitol by Mr. J. Crutchett will far exceed that of St. James's Park. That illumination by gas was far more splendid and magnificent than any former exhibition. The power of the light from the concentration of its flame, gave a remarkable distinctness to objects at a great distance.—This gas has been introduced into the larger cities and villages in England, France, Scotland and to a considerable extent in the United States. A stronger and more intense light then, can be had from the ordinary sources, is indispensable in some of the departments of active industry Necessity more than any other cause has led to the adoption of coal gas thus extensively, notwithstanding the numerous and valid objections to its use. Gas made from oil, now termed Solar Gas, is an excellent substitute for coal gas, being far superior in the brilliancy and power of its light, and the safest. but not the cheapest as some have stated, as the Olifiant Gas Company of Edinburg, Scotland, have fallen to wreck in their competition with coal gas, although the said company was formed with the most sanguine expectations.

Every year presents us with new discoveries tending to promote the convenience, comfort and happiness of man. To this end the Solar gas as now applied to the general purposes of light contributes its full share. The industrious mechanic and assiduous student are now furnished with the means of pursuing their several occupations advantageously during the shades of evening without the fear of injuring their health or enfeebling their sight. To operatives of every class it is a precious boon offering vast advantages never before obtained by means of artificial light.

Oil Gas, named by the associated Dutch Chemists Oliniant Gas, from the peculiar oil-like substance formed by its union with chlorine, was discovered in the year 1796. For a considerable period it received but little attention, except in the laboratories of chemists. Its high illuminating power rendered it always a favorite subject for experiments. During the progress of gas lights, numerous efforts were made to construct an apparatus for generating the gas on a large scale, and applying it to the useful purposes of light, without much success. On the due admixture of atmospheric air turned the question of its utility, the solution of which has been obtained at a recent period.

By the discovery of Mr. James Crutchett, the inventor of the atmospheric mixer, the great question of the practical application of the solar gas for the purposes of light, is placed beyond doubt. Few inventions offer greater advantages than this. By it may now be obtained an agreeable, healthful and safe light, with an unvarying intensity for all the practical purposes of life. For cities, villages, factories and workshops, public halls and private residences, it possesses superior advantages.

By a number of experiments lately made in England for separating the ammoniacal compounds, some valuable discoveries have been made. The basis of the plan (that of Mr. Johnston,) is that under a certain state of circumstances, certain salts will act upon the ammonical compounds while in a dry, or solid state, as efficiently as the same salts act in solution. All that is wanting has been found to be, the presence of a sufficiency of the water of crystalization to bring the reacting atoms into contact. In the experiments alluded to, the sulphate of iron was used. Its action upon the ammoniacal compounds of the gas, is to form the sulphate of ammonia by the acid of the iron uniting with the volatile alkali, while the sulphur and cyanogen compounds are absorbed by their union with the oxide of iron.

It has been found that experiments on this principle are not so successful when the thickness of the lime is increased beyond a certain point, as the weight of the salt compresses too much the under strata, and to obviate this some sawdust had been used which separated the purifying particles so nicely that the gas was considered porfectly purified which passed through the mixture. There is one important fact, however, passed over in the conclusions arrived at by the above experiments of Mr Johnston, viz. that ammoniacal gas will adhere so intimately to water, in about one-sixth of its bulk, that even at the boiling point it will not be driven off, and in that combination it will pass over sulphuric acid unless it be the *concentrated*. It is well known that ammoniacal gas will become liquid under the pressure of seven atmospheres and by mechanical means the gas can thus be purified by an escape valve upon a condenser weighted to eight atmospheres, and the liquid ammonia can be drawn off by a tap. The gas can also be washed with pure water, and we have thought that the apparatus of Mr. Winder, described in No. 1, this volume of the Scientific American, might be employed as an excellent mechanical gas purifier. It could be made strong enough with copper cylinders to stand nine condensed atmospheres and the combination of this quality with its hydraulic powers might be economically employed. Of course experiment would be the only true test. We are not aware of the precise manner or nature of Mr. Crutchett's invention—his *atmospheric purifier*, of which so much has been said regarding the illumination of the Capitol at Washington. There has appeared to our view many exaggerated statements regarding its economy and qualities. Time and experience will determine its true value.

There has been much complaint respecting the great price of gas in this city, in comparison with the price of gas in Liverpool and some other of the British cities. It cannot be expected that gas can be made as cheap in New York as in Liverpool, in consequence of the cheapness of labor and coal in the latter place, but it has appeared to the minds of many that it might be made cheaper than it is.—We have seen some accounts published lately which ascribe to the oil gas, or solar light, as it has been termed, the remarkable value over coal gas of triple illuminating power, but it is well known that by the estimate value of the quantity of oxygen required for combustion, that it is only one third superior to light carburetted-hydrogen, and by this calculation, in comparison with coal, oil will be found to be no more economical for an illuminating gas.

The Worth of a Single Stump.

A friend informs us that during the present year sixteen coal-boats have been snagged in one of the bends of the Mississippi river. Each boat was probably worth $1,000. Here in the retail way, has a single snag cost the community $16,000 in one year.

Boiled Linseed Meal is a superior and economical food for calves.

For the Scientific American.

Japanning.

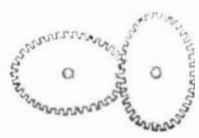
(*Continued from our last.*)

Copal varnish is one of the very finest varnishes for japanning purposes. This varnish is now easily to be had, but there was one period when it was unknown in the manufacturing arts, as it was insoluble in alcohol in any considerable degree. It can be dissolved, however, by linseed oil rendered dry by adding some quicklime at a heat somewhat less than will boil or decompose the oil by it. This solution with the addition of a little turpentine, forms a very transparent varnish, which when properly applied and slowly dried, is very hard and durable. This varnish is applied to snuff boxes, tea boards and other utensils. It also preserves paintings and renders their surfaces capable of reflecting light more uniformly. If powdered copal be mixed in a mortar with camphor it softens and becomes a coherent mass, and if camphor be added to alcohol it becomes an excellent solvent of copal, by adding the copal well ground, by employing a tolerable degree of heat, having the vessel well corked which must have a long neck for the allowance of expansion and the vessel must only be about one fourth filled with the mixture. Copal can also be incorporated with turpentine with one part of powdered copal to twelve parts of pure turpentine subjected to the heat of a sand bath for several days in a long necked mattress, shaking it frequently. This is a good varnish for metals such as tin; the varnish must be dried in an oven each coat and it can be colored with some substances, but alcohol varnish will mix with any coloring matter. For white japans or varnishes, we have already shewn that fine chalk or white lead, was used as a basis and the varnishes coated over it. To japan or varnish white leather, so that it may be elastic, is altogether a different work from varnishing or japanning wood or metal or papier mache.—For white leather oil is the principal ingredient, as it is well known that chalk is extensively used to give white leather its pure color, or speaking more philosophically, its fair colorless whiteness. White leather having already the basis of white varnish, it should get a light coat of the pure varnish, mentioned on page 104, and dried well *in the oven*, or a coat of the oil copal, in this article, will answer very well. This being well dried, boiled nut oil nicely coated and successively dried will make a most beautiful white varnish leather, not liable to crack. This quality takes a long time to dry, and of course is more expensive. Coarse varnish may be made of boiled linseed oil into which is added gradually the acetate of lead as a drier. This addition must be done very cautiously as the oil will be apt to foam over. A better and more safe during mixture than the mere acetate of lead, is to dissolve the acetate of lead in a small quantity of water, neutralize the acid with the addition of pipe clay and evaporate the sediment to perfect dryness and feed the oil when gently boiling gradually with it.—These varnishes or japans, as far as described, have only reference to white grounds. There is some nice work to be observed and there is much in applying the varnishes at the right time, knowing by the eye the right moment when the mixture is perfect, or when to add any ingredient. Those things require practice, but every person can practice by those receipts and practice to some purpose. In future numbers we shall treat of the different colors of japan work and afterwards how they are all finished. G. R.

New York, Dec. 20, 1847,

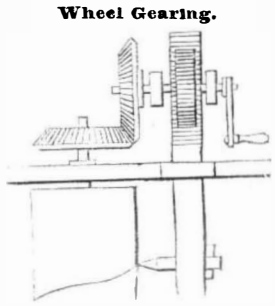
MECHANICAL MOVEMENTS.

Oval Gearing.



There was a time when spur wheel gearing was the universal method for connecting all kinds of machinery; bands and drums were supposed to be impossible things for driving shafts, just as the wheels of a locomotive engine were once supposed to be only able to spin round on a rail instead of moving forward, and it was upon this supposition that one of the first locomotives constructed was made with jointed legs, which marched behind the car and pushed it forward. Drums and bands and cams are now more generally used for the transfer of motion than spur wheels. The above cut, however, will show that although one of the oval wheels was driven at an uniform speed, it would produce a regular and at the same time a varying speed in the other.

Wheel Gearing.



Suppose the spur wheel which gears into the perpendicular rack to be revolved by the handle on the right, the rack will be moved at the same time that the bevils will revolve the cylinder with which the horizontal bevil is connected and a regular spiral line will be described on the surface of the cylinder by the projecting point connected with the lower part of the rack.

Kissing Invention.

A great invention says an exchange paper, has lately come out, by which kissing is made easy to the humblest capacity. The lady sits in a chair. In the back of the chair is a wooden bowl, in which her head reclines, her lips being uppermost. Her beau bends down and she receives the salute full upon her lips so easy and so sweet. One young lady fainted with ecstacy on having the modus operandi explained to her, probably on account of her having a great deal of impatience to put it in practice.

A gentleman last month dropped his umbrella from the gallery of St. Michaels, church London, which fell upon the head of a lady, causing her death the next day.

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